

AMENDMENTS

In the Claims:

This listing of claims replaces all prior versions of claims in the application.

1. (Original) A liquid crystal device comprising: at least,
a pair of substrates; and
a liquid crystal material disposed between the pair of substrates;
wherein the molecular initial alignment in the liquid crystal material has a parallel or almost parallel direction with respect to the alignment treatment direction for the liquid crystal material; and the liquid crystal material shows almost no spontaneous polarization which is perpendicular to the pair of substrates under the absence of an externally applied voltage.
2. (Currently Amended) A liquid crystal device according to claim 1,
wherein the liquid crystal material is a liquid crystal material which can show a the ferroelectric liquid crystal material property.
3. (Original) A liquid crystal device according to claim 1, wherein the liquid crystal molecular alignment treatment for the liquid crystal material is conducted by buffing.
4. (Original) A liquid crystal device according to claim 3, wherein the liquid crystal molecular alignment treatment for the liquid crystal material is conducted in

conjunction with a liquid crystal molecular alignment material providing a low surface pre-tilt angle.

5. (Original) A liquid crystal device according to claim 4, wherein the low surface pre-tilt angle is 1.5° or less.

6. (Original) A liquid crystal device according to claim 2, wherein the liquid crystal material shows a bookshelf layer structure or quasi-bookshelf structure at the ferroelectric liquid crystal phase.

7. (Original) A liquid crystal device according to claim 6, wherein the helical pitch at the ferroelectric liquid crystal phase is 1.2 times or larger the panel gap distance of the liquid crystal device.

8. (Withdrawn) A liquid crystal device comprising: at least,
a pair of substrates;
a liquid crystal material disposed between the pair of substrates; and
a pair of polarizing films disposed on the outside of the pair of substrates;
wherein one of the pair of polarizing films has a molecular initial alignment which is parallel or almost parallel with the alignment treatment direction for the liquid crystal material;

the other of the pair of polarizing films has a polarizing absorption direction which is perpendicular to the alignment treatment direction for the liquid crystal material; and

the liquid crystal device shows an extinction angle under the absence of an externally applied voltage.

9. (Withdrawn) A liquid crystal device according to claim 8, wherein the liquid crystal material is a the ferroelectric liquid crystal material.

10. (Withdrawn) A liquid crystal device according to claim 8, wherein the liquid crystal molecular alignment treatment for the liquid crystal material is conducted by buffing.

11. (Withdrawn) A liquid crystal device according to claim 10, wherein the liquid crystal molecular alignment treatment for the liquid crystal material is conducted in conjunction with a liquid crystal molecular alignment material providing a low surface pre-tilt angle.

12. (Withdrawn) A liquid crystal device according to claim 11, wherein the low surface pre-tilt angle is 1.5° or less.

13. (Withdrawn) A liquid crystal device according to claim 9, wherein the liquid crystal material shows a bookshelf layer structure or quasi-bookshelf structure at the ferroelectric liquid crystal phase.

14. (Withdrawn) A liquid crystal device according to claim 13, wherein the helical pitch at the ferroelectric liquid crystal phase is 1.2 times or larger the panel gap distance of the liquid crystal device.

15. (Withdrawn) A liquid crystal device comprising: at least, a pair of substrates; and a liquid crystal material disposed between the pair of substrates; wherein the current passing through the pair of substrates shows substantially no peak-shaped current, when a continuously and linearly changing voltage waveform is applied to the liquid crystal device.

16. (Withdrawn) A liquid crystal device according to claim 15, wherein the liquid crystal material is a the ferroelectric liquid crystal material.

17. (Withdrawn) A liquid crystal device according to claim 15, which shows a monotonic current, when a continuously and linearly changing voltage waveform is applied to the liquid crystal device.

18. (Withdrawn) A liquid crystal device according to claim 15, wherein the continuously and linearly changing voltage waveform is selected from the group consisting of: a triangular waveform, a sine waveform, and a rectangular waveform.

19. (Withdrawn) A liquid crystal device according to claim 15, wherein the liquid crystal molecular alignment treatment for the liquid crystal material is conducted by buffing.

20. (Withdrawn) A liquid crystal device according to claim 19, wherein the liquid crystal molecular alignment treatment for the liquid crystal material is

conducted in conjunction with a liquid crystal molecular alignment material providing a low surface pre-tilt angle.

21. (Withdrawn) A liquid crystal device according to claim 20, wherein the low surface pre-tilt angle is 1.5° or less.

22. (Withdrawn) A liquid crystal device according to claim 15, wherein the liquid crystal material shows Smectic A phase to the ferroelectric liquid crystal phase sequence.

23. (Withdrawn) A liquid crystal device according to claim 22, wherein the liquid crystal device has been produced by causing a phase transition from Smectic A phase to a ferroelectric liquid crystal phase, while decreasing the device temperature at a rate of 3°C per minute or less.

24. (Withdrawn) A liquid crystal device according to claim 23, wherein the phase transition from Smectic A phase to a ferroelectric liquid crystal phase is conducted, while applying an alternative current waveform voltage.

25. (Withdrawn) A liquid crystal device according to claim 24, wherein the alternative current waveform voltage is selected from the group consisting of: a triangular waveform, a sine waveform, and a rectangular waveform voltage.

26. (Withdrawn) A liquid crystal device according to claim 24, wherein the alternative current waveform voltage is applied so as to provide an electric field of 1 V/mm or less in the course of the phase transition from the Smectic A phase to the Ferroelectric liquid crystal phase;

the alternative current waveform voltage is applied so as to provide an electric field of 1.5 V/mm or less when the temperature is between the phase transition temperature to the Ferroelectric liquid crystal phase, and the temperature which is 10° C lower than the phase transition temperature;

the alternative current waveform voltage is applied so as to provide an electric field of 5 V/mm or less when the temperature is between the temperature which is 10° C lower than the phase transition temperature, and the temperature which is 20° C lower than the phase transition temperature; and

the alternative current waveform voltage is applied so as to provide an electric field of 7.5 V/mm or less when the temperature is 20° C or more lower than the phase transition temperature.

27. (Withdrawn) A liquid crystal device according to claim 16, wherein the liquid crystal material shows a bookshelf layer structure or quasi-bookshelf structure at the ferroelectric liquid crystal phase.

28. (Withdrawn) A liquid crystal device according to claim 27, wherein the helical pitch at the ferroelectric liquid crystal phase is 1.2 times or larger the panel gap distance of the liquid crystal device.

29. (Withdrawn) A liquid crystal device comprising: at least,

a pair of substrates; and
a liquid crystal material disposed between the pair of substrates;
wherein the liquid crystal material shows a bookshelf layer structure or quasi-bookshelf structure at the ferroelectric liquid crystal phase.

30. (Canceled)

31. (Withdrawn) A liquid crystal device comprising: at least,
a pair of substrates; and
a liquid crystal material disposed between the pair of substrates;
wherein each of the pair of substrates has thereon a molecular alignment film having a thickness of 3,000 Å or more, which has been subjected to buffing alignment treatment so as to provide a contact length of the buffing alignment treatment of 0.3 mm or more.

32. (New) A liquid crystal device according to claim 1, which shows an extinction angle under the absence of an externally applied voltage, when the liquid crystal device is inserted between a polarizer and an analyzer which are arranged in a cross-Nicole relationship.